

# Mooyah River Watershed Restoration Project – 2001/02 Compendium Report

## Objectives

The Mooyah River fish habitat restoration project (1999 to present) aims to increase productivity and survival of overwintering juvenile salmonids by developing stable off channel rearing habitat and stable LWD cover structures in the mainstem channel and major tributaries.

## FRBC Region / MELP Region

Pacific / Vancouver Island

## Authors

Warren Warttig, RPBio

## Proponent and Partners

- Central Westcoast Forest Society
- Interfor, Kingcome Enhanced Forestry Division
- Steelhead Society, Habitat Restoration Corp.
- DFO, HRSEP
- Ministry of Forests
- Ministry of Water, Land, and Air protection
- IWA Canada
- Mowachaht/Muchalaht First Nations

## Funding Sources 2001

- FRBC: Interfor \$80,000, Steelhead Society, HRC \$75,399
- DFO, HRSEP: \$47,610

## Watershed / Stream

Mooyah Watershed, RMP/EEV Watershed #231  
Mooyah River

## Location & Description

Mooyah River is a central West Coast Vancouver Island watershed, located near the South Western section of Nootka Sound at Latitude 49°39.286, Longitude 126°25.000. It is in the Mowachaht/Muchalaht First Nations traditional territory. It can be accessed by boat out of Gold River, or out of Tofino by boat to Stewardson Camp, and driving one hour North. The Mooyah River Watershed has an area of approximately 4023 ha, with an average annual rainfall of 5100 mm (Env. Can. 1999).

The river has 4.0 kilometers of mainstem anadromous habitat. It has a major tributary on the west side that offers 2.0 km of anadromous access. The anadromous habitat supports Coho, Chum, Chinook, Sockeye, Pink Salmon, Steelhead, Dolly Varden Char, and Cutthroat and Rainbow Trout (FISS, 2000; DR Clough). Above the 12 meter falls

on the mainstem is a low gradient headwater area of 4.0 km length that supports a resident Dolly Varden Char population. Above, the upper headwaters are too steep for fish and drain an 800-meter high watershed divide with the Sydney and Escalante Rivers. There is resident Cutthroat in the upper reaches of the West Fork above the anadromous barrier at the Stewardson Road Bridge.

## Introduction

The Gold River Watershed Committee identified Mooyah River as a priority for enhancement of Chinook due to its diminishing escapements, and is recognized by the fisheries biologist for the Nuu-chah-nulth Tribal Council (Rodger Dunlop) as a good candidate for restoration. Enhancement of Chinook has been ongoing by Betty and John Frame of the Gold River Chinook Project for the last five years.

## Assessments/Prescriptions/Previous Work

### 1999:

- Stream overview assessment of Mooyah River (Warttig, W. 1999) finding quality rearing habitat to be the limiting production factor.
- Road risk assessment, and Level II prescriptions (Leslie, L., M. Wise, 1999).

### 2000:

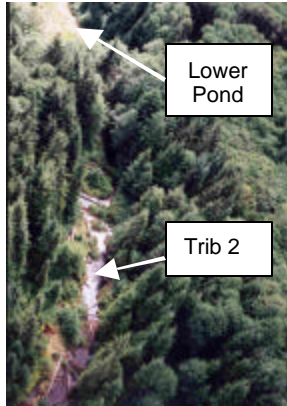
- Deactivation of highest risk roads began
- Level II stream prescriptions for a small side channel (Trib 1) (FsRBC funded).
- Construction of the side channel completed.
- Riparian prescriptions developed (V. Poulin).

### 2001:

- FHAP for Mooyah River was completed by the Steelhead Society, along with Level II prescriptions for complexing of Trib 2 and construction of two earth dams to create rearing habitat with the formation of two ponds.
- Completion of all high risk up slope restoration during the 2001/02 fiscal year.

## Instream Restoration Work Summary, 2001

Prior to initiating in-stream activities, Stand Management Prescriptions (SMP's) for riparian restoration work were submitted to the agencies for approval. The intention being to utilize some of the trees felled from the riparian treatment as in-stream LWD. As part of this process, additional complexing was added the Trib 1 side channel constructed in 2000. Using this approach, Trib 2 was also complexed with the residual LWD.



**Figure 1, Trib 2 Complexing**

By mid August, approximately 2,800 linear metres, and 2,080 square metres of habitat was complexed.

Construction of two retention dams in upper Trib 2 started in mid August. The dams were built on the site of a failed beaver dam, where the resulting ephemerally wetted marshland led to seasonal flow isolation and fish stranding. Rock ballast had been stock piled prior to construction during the on-going road deactivation. Temporary tote roads were built to haul in material. Each dam included a fish way, and were designed to spill over the centre of the dam only during high-accumulated rainfall events. Each dam included a core consisting of a mixture of rock and soil that was compacted utilizing a small roller compactor.

The core was then lined with welded PVC liner to ensure a good seal. Finally each dam was lined with filter fabric (to protect the PVC liner) and ballasted with large rock. The fish-ways were complexed with a series of Newbury Weirs, and the ponds were complexed with LWD.



**Figure 2, Aerial of dry pond sites and construction of core of lower dam**



**Figure 3, Lining core of dam with PVC liner**



**Figure 4, looking upstream from lower dam**

The temporary tote roads were deactivated, and all areas were heavily seeded to minimize sediment.

### Outputs

In 2001 the following construction related activities were undertaken:

- Trib 1 and 2, complexing of 6,240 m<sup>2</sup>
- Upper Trib 2 retention dams resulted in the creation of two ponds totaling an estimated 4,614 m<sup>2</sup> of quality winter rearing habitat

### Production Estimates

Fish production estimates are based upon existing biostandards for similarly restored fish habitat (Keeley et al. 1996).

| Restoration year | Species & life stage | Annual production |
|------------------|----------------------|-------------------|
| 2001             | Coho smolts          | 4806              |
| 2000             | Coho smolts          | 855               |
| <b>TOTAL</b>     |                      | <b>5661</b>       |

### For Further Information, Please Contact:

Len Dziama  
 Central Westcoast Forest Society  
 Box 405, #6 Davison Plaza  
 Ucluelet, B.C., V0R 3A0  
 Tel: (250) 286 4547 ext. 24  
 Email: [cwfs@cedar.alberni.net](mailto:cwfs@cedar.alberni.net)

Jesse Brown, Fisheries Biologist  
 Steelhead Society, Habitat Restoration Corp.  
 #103-131 Water Street  
 Vancouver, BC V6B 4M3  
 Tel: 604-684-6242  
 Email: [jbrown@steelheadsociety.com](mailto:jbrown@steelheadsociety.com)

### UTM (NAD83) Coordinates

Zone: 9  
 Northing: 684000  
 Easting: 5498000

### Watershed Code

Mooyah River-930491500